REMARKS

Claims 1–8 remain in this application. Claim 1, 2 and 4–8 are currently amended and claim 3 is as originally filed.

Objection to the Oath/Declaration

The Applicants are currently having a certified translation of the Oath/Declaration prepared, and they will send it in when it is finished.

Objection to the Abstract

A new abstract was prepared and put on new page 14. The new abstract is based on the abstract on the front page of the published PCT application, but various minor typographical errors/usage errors were corrected. No new matter has been added. In light of this amendment, Applicants submit that the rejection of the Abstract under 37 CFR 1.52(b)(4) is moot, and they request that it be withdrawn.

Amendments to the specification

Numerous typographical errors and usage errors were corrected. Section headings were also added. No new matter was added by these amendments.

Objection to claims 4–8

Claim 4–8 are objected to under 37 C.F.R. 1.75(c) as being in improper form because of multiple dependencies. The Applicants have removed multiple dependencies from Claims 4–8, thus obviating the objection.

Rejection of claims 1 and 3 under 35 U.S.C. § 102(b)

Claims 1 and 3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Chow (U.S. Patent No. 5,240,749, hereinafter the '749 parent). The Applicants traverse these rejections.

Claims 1 and 3 relate to a method for manufacturing a diamond film using pulsed microwave plasma. This plasma is obtained by subjecting a gas to a pulsed discharge, which has a succession of low-power states and high-power states. The specification describes the pulse that can be periodic or quasi-periodic and repeated at a high repetition rate (please see Figure 2a and 2b of the application). Further, the standby time T_{OFF} is less than the lifetime of H-atoms in the plasma (page 9, lines 29–34). The lifetime of H-atom in the plasma is estimated in the literature to be about 2 ms (Lamara *et al. Plasma Sources Sci. Technol.* **2006**, *15*, 526-532).

The process described in the '749 patent does not involve a pulsed discharge but rather a continuous discharge at two different power levels. The first step lasts one hour with the applied power of 600 W/cm^3 (column 4, line 24; column 5, line 50; and claims 3, 9, 12 and 18). During the second step, which has the duration of one hour, the power is raised to 1000 W/cm^3 (column 4, line 42; and column 5, line 63; and claims 4, 10, 13 and 19). In the final third step, the power is maintained for five to six hours (claims 5 and 14). Thus, the method in the '749 patent has the same deficiencies as the prior art described on page 1, lines 8-17 of this application. *I.e.*, the power, which is applied continuously for an extended time into a large volume of plasma, will contribute to heating of the walls of the deposition apparatus. This deficiency will significantly decrease the efficiency of the process. The '749 patent does not disclose or suggest the use of a pulsed plasma in order to overcome this problem.

In view of the foregoing, the applicants respectfully request reconsideration and withdrawal of the § 102(b) rejections of claims 1 and 3.

Rejection of claim 2 under 35 U.S.C. § 103(a)

Claim 2 stand rejected under 35 U.S.C. § 103(a) as being anticipated by Chow (the '749 parent) in view of Kawarada *et al.* The Applicants traverses these rejections.

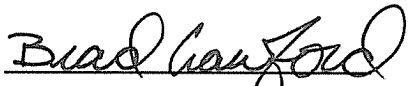
In light of the above arguments, the Applicants submit that the '749 patent does not disclose or suggest the use of a pulsed plasma in the manufacturing of a diamond film. Further, Kawarada *et al.* reference does not cure these deficiencies. Thus, it is not obvious to a person having ordinary skill in the art to employ pulsed microwave plasma in the manufacturing a

diamond film. The § 103(a) rejection is moot, and the applicants respectfully request that it be withdrawn.

Applicants respectfully contend that all requirements of patentability have been met. Allowance of the claims and passage of the case to issue are therefore respectfully solicited. The Examiner is urged to contact the Applicants' undersigned representative at (312) 913-2114 if the Examiner believes a discussion would expedite prosecution of this application.

Respectfully submitted,

Date: December 11, 2006



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